

We claim:

- 5 1. A process for preparing alkylbenzenes by catalytic reaction of benzene and olefins, which comprises passing the olefin-containing feed stream for purification over an adsorption layer.
- 10 2. A process as claimed in claim 1, wherein the adsorption layer comprises carbon black, activated carbon, aluminum oxides, silica gels, natural or synthetic aluminates, silicates, aluminum silicates or zeolites.
- 15 3. A process as claimed in claim 1 or 2, wherein the adsorption layer comprises a zeolite of the type ZSM-5, ZSM-11, ZSM-12, ZSM-22, ZSM-23, ZSM-35, ZSM-48, beta-zeolite, zeolite Y, dealuminated zeolite Y, mordenites, zeolite MCM-22, MCM-41, MCM-49 or MCM-56.
- 20 4. A process as claimed in any of claims 1 to 3, wherein the adsorption layer is located in a fixed-bed reactor.
- 25 5. A process as claimed in any of claims 1 to 4, wherein the feed stream is passed over the adsorption layer at from 0 to 300°C and a pressure in the range from 1 to 45 bar.
6. A process as claimed in any of claims 1 to 5, wherein the olefin used is ethylene or propylene.
- 30 7. A process as claimed in any of claims 1 to 6, wherein the catalysts used are Lewis acids or zeolites.
8. A process as claimed in any of claims 1 to 7, wherein the reaction is carried out in the liquid or gaseous phase.
- 35 9. A process as claimed in any of claims 1 to 8, wherein benzene-containing feed streams are also passed over an adsorption layer.

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